

CLAIMS

What is claimed is:

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5 1. A bearing comprising:  
a temperature conducting housing;  
a bearing element disposed within the housing; and  
at least one fan mounted to the bearing housing, wherein the at least one fan is  
adapted to transfer heat from the bearing housing by forced convection.

10 2. The bearing of claim 1, wherein the bearing housing includes an oil sump,  
and wherein the at least one fan is disposed adjacent to the oil sump.

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3. The bearing of claim 1, wherein the bearing housing includes a plurality of  
cooling fins.

15 4. The bearing of claim 1, further comprising a temperature sensor disposed  
within the bearing housing adapted for determining a temperature within the bearing  
housing.

20 5. The bearing of claim 4, wherein the temperature sensor is adapted for  
determining the temperature of the bearing element.

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6. The bearing of claim 4, wherein the temperature sensor is adapted for  
determining the temperature of an oil sump within the bearing housing.

25 7. The bearing of claim 4, further comprising a logic controller electrically  
coupled to the at least one fan and to the temperature sensor wherein the logic controller is  
adapted to receive a signal from the temperature sensor, process the signal, and operate the  
at least one fan according to the received signal.

8. The bearing of claim 7, wherein the signal from the temperature sensor is generated according to the temperature within the housing.

5 9. The bearing of claim 8, wherein an upper temperature limit is pre-selected and wherein the logic controller is adapted to turn the at least one fan on based upon a relationship between a sensed temperature and the upper temperature limit.

10 10. The bearing of claim 9, wherein a lower temperature limit is pre-selected and wherein the logic controller is adapted to turn the at least one fan off based upon a relationship between a sensed temperature and the lower temperature limit.

11. The bearing of claim 8, wherein the at least one fan comprises at least one primary fan and at least one secondary fan.

15 12. The bearing of claim 11, wherein a first temperature limit is pre-selected and wherein the logic controller is adapted to turn the at least one primary fan on based upon a relationship between a sensed temperature and the first temperature limit.

20 13. The bearing of claim 12, wherein a second temperature limit is pre-selected and wherein the logic controller is adapted to turn the at least one secondary fan on based upon a relationship between a sensed temperature and the second temperature limit.

25 14. The bearing of claim 13, wherein a third temperature limit is pre-selected and wherein the logic controller is adapted to turn the at least one secondary fan off based upon a relationship between a sensed temperature and the third temperature limit.

30 15. The bearing of claim 14, wherein a fourth temperature limit is pre-selected and wherein the logic controller is adapted to turn the at least one primary fan off based upon a relationship between a sensed temperature and the fourth temperature limit.

16. The bearing of claim 8, wherein the at least one fan is adapted to operate at variable speeds and wherein the logic controller is adapted to control the speed of the at least one fan.

17. A method for controlling the temperature of a bearing having a housing and a bearing element disposed within the housing, the method comprising:  
mounting at least one fan on the bearing housing;  
disposing a temperature sensor within the bearing housing;  
electrically coupling a logic controller between the at least one fan and the temperature sensor; and  
adapting the logic controller to receive a signal from the temperature sensor and to operate the fan in response to the signal received.

18. The method of claim 17, wherein the temperature sensor is disposed adjacent the bearing element.

19. The method of claim 17, wherein the housing includes an oil sump and the temperature sensor is disposed adjacent the oil sump.

20. The method of claim 17, comprising pre-selecting a temperature range in which the fan will operate.

21. The method of claim 18, wherein the at least one fan comprises at least one primary fan and at least one secondary fan.

22. The method of claim 17, comprising pre-selecting at least first and second temperature limits and adapting the logic controller to operate at least one primary fan in response to a signal received which corresponds to the first temperature limit and to operate at least one secondary fan in response to a signal received which corresponds to the second temperature limit.

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23. A bearing comprising:  
a housing;  
a bearing element disposed within the housing;  
means for introducing forced air flow over an exterior surface of the bearing housing;  
means for discerning a temperature of an element of the bearing; and  
means for controlling the forced air flow in correlation with the temperature discerned of the element of the bearing.
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24. The bearing of claim 23, wherein the housing includes an oil sump, and wherein the means for introducing forced air flow includes a fan disposed adjacent to the oil sump.
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25. The bearing of claim 23, wherein the means for controlling forced air flow includes means for varying the amount of air flow.
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26. A system comprising:  
a plurality of bearings, each bearing including a thermally conductive housing, a bearing element disposed within the housing;  
at least one fan affixed to the housing of each bearing;  
a temperature sensor disposed within the housing of each bearing and corresponding to the at least one fan affixed on the same bearing; and  
a logic controller adapted to receive a signal from each temperature sensor and to operate the corresponding at least one fan according to the received signal.
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27. The system of claim 26, further comprising an oil sump formed in each bearing housing, and wherein at least one fan is disposed adjacent to each oil sump.